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ABSTRACT

This paper discusses research findings about 2 sources of violent death associated with alcohol -- suicide and homicide. After depression, alcoholism is the 2nd most common psychiatric diagnosis among suicide victims. Suicide attempters also are frequently alcoholic. The association between alcoholism and suicide, however, may only apply to white males during the middle years of life. The relatively low rates of suicide among older black alcoholics may be a consequence of the earlier onset of excessive drinking in this group, although this needs direct confirmation before proven true. The role of alcohol, in contrast with alcoholism, is less clear in suicide, although perhaps a quarter of suicide victims had been drinking at time of death. Homicide, on the other hand, is associated with alcohol more than with alcoholism. In most studies, about 50 percent of both homicide offenders and victims had been drinking at the time of the crime. Two autopsy studies indicate that victims, at least, were often severely intoxicated. However, alcoholism is rarely diagnosed in homicide offenders, suggesting that, while alcohol consumption may contribute to homicide, alcoholism does not. (MA)

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Alcohol in Suicides and Homicides

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Excessive use of alcohol and a reduced life expectancy are commonly associated. One study indicates that alcoholics have two and one-half times the normal mortality rate, with a disproportionate number of violent deaths.[1] Deaths attributable to alcohol are even more numerous when "innocent victims" are included, such as occurs in highway accidents and homicide. This paper discusses two sources of violent death associated with alcohol--suicide and homicide.

Alcoholism and Suicide

In 1825 Casper,[2] studying 218 suicides, found that 28% could be attributed to "alcoholism or debauchery." Numerous investigators have subsequently reported a connection between excessive drinking and suicide.

Alcoholism-suicide studies are of two types. In one, drinking histories of suicide victims are studied. Of eleven such studies (Table 1), all except one found rates of alcoholism among suicide victims to be substantially in excess of the 4% alcoholism rate often estimated for the general adult population.[13] In four studies, about 10% of suicide victims had been alcoholic or heavy drinkers; in five studies nearly a third of suicide victims were alcoholic.

Another approach to studying alcoholism and suicide is to identify a group of alcoholics and determine how many die by suicide. Six studies from several different countries indicate that from 6 to 21% of alcoholics commit suicide.[6,14-18] Only about 1% of the general population in the United States and United Kingdom do so.[19] Kessel and Grossman,[15] in a

follow-up study of London alcoholics, found that 8% died by suicide within a one to eleven year period after hospitalization--a suicide rate some 75 to 85 times greater than expected for males of their age in London. Gabriel,[14] in his 1935 study of mortality in a group of alcoholics, found that tuberculosis was the most common cause of death (23%), and that suicide was the second most common (20%). As mortality from tuberculosis has declined in recent years, no doubt suicide has become increasingly important as a cause of death in alcoholics.

Drinking habits have also been studied among suicide attempters, and conversely, suicide attempts have been studied in groups of alcoholics. Among suicide attempters, alcoholism is even more common than among suicide victims. In six studies, rates of alcoholism among attempters ranged from 13 to 50%.[6,11,20-23] In the most comprehensive of these studies, Dahlgren[6] found that nearly half of male patients who attempted suicide abused alcohol.

In two series, figures for attempted suicide among alcoholics were equally as high--25 and 32%.[11,24] An additional 32 and 20% had seriously considered an attempt.

Studies of suicide in general have indicated that suicide victims and suicide attempters represent overlapping but separate populations.[25] For example, compared to victims, attempters generally are younger and more often women. Among suicide victims, depression and alcoholism are the two most common diagnoses. Attempters are more likely to have personality disorders or hysteria. A history of suicide attempt is only of limited value in predicting suicide. Although most individuals who commit suicide have made previous attempts, most people who attempt suicide do not later die by suicide. Within a year or two after a suicide attempt, probably no more than 1 to 3% commit suicide,[26] although the figure is higher in patients

who have been recently hospitalized after a suicide attempt.[27]

In studies of suicide and alcoholism, men invariably outnumber women among both victims and attempters. Generally, the higher the rate of suicide among alcoholics, or of alcoholism among suicides, the greater the male-female ratio. Since alcoholism is more common in men than in women (by a factor of five to one, according to most estimates), the relevance of this sex difference is unclear.

Race is another variable affecting alcoholism-suicide rates. The interaction between race, sex and age is a complex one. Blacks have lower rates of suicide than whites, but the difference is much more striking between males and females, and the difference between white and black males only begins to emerge after age 35.[28] After this age, the difference increases with increasing age, reaching a ratio of about 5:1 by age 75. Since blacks apparently have a higher rate of alcoholism than whites,[29-32] their low suicide rate is curious. Robins[33] has suggested the difference may be related to the fact that black alcoholics apparently begin drinking excessively at a younger age than do white alcoholics. Her reasoning is as follows:

There is evidence that alcoholism contributes to suicide chiefly in the middle years.[32] Two factors may explain this. First, alcoholics have excessive deaths from causes other than suicide (accidents, cirrhosis, etc.)[18,34] and therefore alcoholics are relatively unlikely to survive long enough to contribute many deaths by suicide in the aging population. Assuming their propensity to suicide is constant over the years, their excess mortality means they should contribute more to younger suicides than to older ones simply because they constitute a larger part of the younger population. Second, a sizable proportion of alcoholics apparently recover spontaneously

or with treatment as they age, and recovered alcoholics are not replaced by new cases.[35] Åmark[36] has shown that virtually no cases of alcoholism emerge for the first time after 50. Recovery without replacement again leads to a lower proportion of alcoholics in the aged population than in the younger population. Thus, recovery as well as early deaths explain a declining contribution to suicide by alcoholics in the later years. After age 45 or 50, alcoholics form a constantly decreasing proportion of the population.

However, there is also evidence suggesting that even among the alive and active alcoholic population, suicidal risk may decline with age. Atkisson[37] found that in San Francisco's Skid Row area, younger suicides tend to be alcoholic, while older suicides were not. Presumably many older Skid Row residents are alcoholics; yet they contributed few suicides. While no study has reported suicide rates among alcoholics by age, Dahlgren's study[6] showed an excess mortality for all causes only in "lower middle age"--40 to 55--and his alcoholics showed, if anything, a low mortality rate in the later years. Schmidt and de Lint[34] found excess mortality throughout life, but the excess was much greater before age 50 than after. Dahlgren reported that deaths by suicide (and by accident) were more concentrated within the first five years (62%) of follow-up than were deaths by nonviolent means (35%). This suggests that when alcoholics commit suicide they do so relatively early in the course of their alcoholism. Unfortunately, Dahlgren dealt with exits from his sample only by death, not by recovery, so that it is not possible to tell what proportion continued in their alcoholism in the later years without committing suicide. Sundby[18] similarly showed that suicides accounted for 12% of all alcoholic deaths in the first five years of follow-up and only 6% of all deaths during the total follow-up period. He also found a second high suicide risk late in the course of the

illness, but only for those alcoholics who had not lost their social standing early in their lives. Although Sundby attempted to confirm the persistence or recovery from alcoholism over the period of follow-up, he did not calculate suicide rates based only on cases known still to be alcoholics.

Sundby's comment that late suicides differ from early suicides in not having early lost their social standing suggests that suicide in alcoholics is a response to actual or impending loss of status, occupational role, and interpersonal relationships. This hypothesis is consistent with the observation by Murphy and Robins[38] that, among completed suicides, alcoholics (but not depressives) had usually experienced or anticipated a major loss within the last six weeks prior to the suicide. Such losses may well typically occur in the middle years of alcohol abuse. After an alcoholic "hits bottom" he has little left to lose in the way of prestige or human relationships. He therefore may be even less likely to experience losses that may precipitate suicide in older men than is the general population in his age bracket.

These observations prepare the way for a possible explanation of racial differences in alcoholic suicides. A number of studies, as noted earlier, indicate that alcoholism begins younger in blacks than in whites. Bahr[39] reports that the age of loss (or "disaffiliation") is related to the age of onset of heavy drinking. Alcoholics with early heavy drinking showed more family break-ups, unemployment, and lack of membership in voluntary associations than did alcoholics of the same age with later onsets. The early onset of alcoholism in blacks together with their higher overall rate of alcoholism leads to the hypothesis that older black males may commit suicide less frequently than whites because a higher proportion of the older black

population are late stage alcoholics who have long since passed through the disaffiliation stage that precipitates suicide. This hypothesis requires one assumption for which we have no direct evidence: that late stage alcoholics are not only less suicidal than early stage alcoholics but that they may also be less suicidal than the general population. At this point we have no evidence that late stage alcoholism is protective against suicide, only that it does not seem to cause it.

Robins further speculates that if late stage alcoholism is protective against suicide, one reason may be that the later stages of alcoholism are associated with sufficient brain damage "to dull the experience of suffering and to prevent the preparation necessary for successful suicidal behavior."[33] It is not known how widespread brain damage may be in the general population of alcoholics nor after how many years of drinking it usually appears. Schmidt et al. [40] observed that the chronic brain syndromes of alcoholism are associated both with poverty and old age. The association with age suggests that brain damage occurs only after many years of drinking. The association with poverty could be explained in a number of ways: more damage from cheap liquor, less protection from damage because of poor nutrition, a lower initial level of brain functioning which makes damage more apparent, or simply an earlier onset of heavy drinking (and thus more total exposure to alcohol). Whatever combination of these explanations may be correct, one would expect more brain damage among black than among white alcoholics of equal age since they are poorer and begin drinking younger. Therefore, if brain damage does protect against suicide, black alcoholics should disproportionately be thus protected.

Thus, two hypotheses may simultaneously help to explain both the decrease in suicide with aging and the low rate of suicide among black males:

suicide becomes less probable (a) the less an alcoholic has to lose in terms of wealth, status and interpersonal relationships, and (b) the greater the brain damage he has suffered.

Neither hypothesis has been explored directly and both require further study. But certainly the fact that suicide is rare among blacks is one of the most challenging demographic observations we have. It is particularly interesting because suicide, if anything, would be expected to be higher in blacks than in whites for a number of reasons: it is high among Protestants, among divorced persons, and among agricultural workers, laborers, and the unemployed.[28] Blacks have higher rates than whites for each of these predictors of suicide, and yet seldom commit suicide.

The above hypotheses originated in part with the observation that black alcoholics become alcoholic at an earlier age than do white alcoholics. Rushing[41] has a different theory to account for the lower suicide rates among black alcoholics than among white alcoholics. He believes that attitudes towards heavy drinking in the Negro culture are more "permissive" than in white groups of comparable socioeconomic status. If, as he suspects, suicide is a consequence of the disruptive effect on interpersonal relations of heavy drinking, then less disruption presumably would occur in the more permissive black society and therefore occasions for suicide would be reduced.

Contrasting with these "processional" explanations, some observers prefer to view alcoholism and suicide as different expressions of a single variable. Wallinga[42] traces both alcoholism and suicide to "an underlying personality disturbance which finally was brought to medical attention through an attempt at self destruction . . . previously evidenced for a prolonged length of time by the refuge in alcohol." Menninger[43] views alcoholism and suicide as extreme expressions of a universal self-destructive

instinct--Freud's famous Thanatos. According to this view, alcoholism is merely "chronic suicide." As Kessel and Grossman[15] point out, the corollary to this proposition (i.e., because heavy drinking is a substitute for suicide, alcoholics rarely commit it) appears inconsistent with the facts.

Related but not synonymous with the above explanations is the possibility that at least certain types of alcoholism and suicide both arise from a common predisposition to depression. Family history data tend to support such a possibility. Depression is overrepresented in families of alcoholics--especially among female relatives--and alcoholism is common in the families of depressives--especially among male relatives.[12] Only a minority of alcoholics, however, have a clearcut depressive illness independent of their alcoholism, and since alcohol abuse itself produces depressive symptoms, it is usually impossible to determine which comes first--the alcoholism or depression. As with the other hypotheses, therefore, this too remains unproven.

In conclusion, it appears clear that alcoholics as a group commit suicide more often than nonalcoholics. As Rushing[41] has noted, however, the association may only apply to white male alcoholics, and studies by Robins[32] and others suggest that alcoholism, even in this group, contributes to suicide mainly in the middle years.

Complicating attempts to explain the association are marked discrepancies in suicide-alcoholism findings. These may arise from several factors. Rarely is "alcoholism" or "heavy drinking" defined with any degree of rigor; the terms are often used interchangeably and the groups they represent are almost certainly heterogeneous. Studies of suicide among alcoholics usually involve relatively short follow-ups, and identifying alcoholics in a series of suicides inevitably is post factum.

Finally, in several studies it is unclear whether suicide was associated with alcohol or alcoholism. Undoubtedly some suicide victims had been drinking at time of suicide and intoxication may have resulted in a suicide that perhaps otherwise might have been avoided. It is unlikely, however, that this occurs only in alcoholics. Little data exist relevant to the role of alcohol intoxication in suicide. Of suicides brought to autopsy, about one-quarter have alcohol in their blood or stomach contents, judging by three studies.[44-46] To conclude, however, that alcohol caused the deaths could be misleading; in no instance was the alcohol concentration at a lethal level, and it was impossible to tell ex post facto whether alcohol contributed to the deaths indirectly.

Alcohol and Homicide

In a 1958 survey of deaths by homicide the Metropolitan Life Insurance Company reported that in almost 50% of cases the "slayer, victim or both had been drinking and that in some of these cases no apparent motive for the slaying was demonstrated except that the slayer was crazed with liquor."[47] In at least 15 studies conducted in English-speaking countries in the last 30 years, this association between alcohol consumption and homicide has been noted.

MacDonald[48] reviewed ten of these studies and found that the percentage of murderers who had drank alcohol prior to the crime ranged from 19% ot 83%, with a median of 54%. In five other studies, about half of homicide offenders had drunk alcohol before the crime, and between 25% and 50% of homicide victims also had been drinking.[49-53] Wolfgang, investigating 588 arrests for homicide, found that either or both the victim and the offender had been drinking immediately prior to the slaying in nearly two-thirds of

the cases.[54] Two studies[49,55] indicate that women are as likely as men to be drinking at the time they are homicide offenders or victims.

Further confirmation of the role of alcohol in homicide has been provided by two post-mortem studies[46,56] showing that over 50% of homicide victims have significant blood levels of alcohol. A 1964 study of homicide victims in Cape Town, South Africa, revealed that 64% had alcohol in their blood and 50% had levels over 150 mg %.[46] Furthermore, if the homicides occurred on a Friday or Saturday night, 80% had alcohol in their blood, a difference between these nights and the rest of the week significant at the .01 level.

In general, studies showing an association between alcohol and homicide are of two types: (1) those in which mental hospital patients are studied, and (2) those in which suspected or convicted murderers are examined by psychiatrists on court request.

Sampling bias, therefore, enters into almost every study of the alcohol-homicide association and must be reckoned with in evaluating the findings. It is interesting, however, to note that among murderers sent to mental hospitals alcohol apparently plays a smaller role in homicide than among homicide offenders examined by court psychiatrists.

Lanzkron, studying 150 murderers incarcerated in a New York State mental hospital, reported that only 12% had been "severely intoxicated" at the time of the homicide, although one-third had been drinking.[52] McKnight, studying a similar sample in Ontario, reported that few if any of the patients had been intoxicated at the time of the murder.[53] In neither study was alcoholism a common diagnosis. In Gillies' study of convicted murderers in Scotland, only 10% were considered to be "heavy drinkers," although 50% had been drinking at the time of the murder, and alcohol, in

Gillies' opinion, constituted the single most important "cause" of homicide in his series.[51] The most common psychiatric diagnoses, in most series, was schizophrenia (particularly the paranoid type) and personality disorders. Excluding patients studied in mental hospitals, however, apparently about half of murderers do not have a diagnosable psychiatric illness.[51]

Little data exist to distinguish alcohol-related murders from those in which alcohol apparently played no role. Almost all studies, however, indicate that murderers as a group share certain characteristics. For example, most murderers are fairly young; less than 20% are women; Negroes commit several times more murders than whites in comparison to their proportions in the general population; most murderers have a low level of education and fairly low I.Q.'s.[47-54] In one study, Catholics were found to be overrepresented among murderers,[51] and several studies comment upon the low proportion of Jews among both homicide offenders and victims.[51,52] The later finding has been cited as evidence for the importance of alcohol in homicide, since alcohol abuse among Jews appears to be relatively uncommon.

Further evidence suggesting the importance of alcohol in homicide is the common observation that most homicides occur on weekends, especially Friday and Saturday night, the principle occasion for consumption of large amounts of alcohol, at least among lower classes.[46,51,53,54,56] McKnight found that homicides least often occurred on Tuesday nights and most often happened in the spring and fall, and around the Christmas season.[53]

The perils of generalizing about murders and murderers is illustrated by discrepancies in data about homicide-followed-by-suicide in various countries. In England and Wales, for example, about one-third of homicides are followed by suicide by the offender. In Scotland, however, this apparently occurs much less often.[51]

Apart from the above observations, almost nothing is known about the nature of the contribution of alcohol to homicidal acts. In Cole's series of women murderers, about 7% were said to have "known brain disease."[49] A connection between brain damage and violent acts precipitated by alcohol has been observed often, but generally without direct confirmation. In Cuthbert's series of 70 murderers, one-half had "abnormal" electroencephalograms and seven had severe temporal lobe dysrhythmias.[50] In six of the seven, dysrhythmias were "enhanced or activated" by administration of alcohol. Possibly alcohol may directly precipitate violent behavior in a small minority of individuals. However, most murderers apparently do not have pathological responses to alcohol.

Other attempts to explain the association between alcohol and homicide generally have consisted of vague allusions to alcohol's "disinhibiting" properties. Experimental attempts to produce aggressive behavior with alcohol have been negative or equivocal.[57-60] After one study, Bennett et al. concluded that possibly the "mere presence of many other persons, especially in the less formal context of bars and parties, might be sufficient to enhance aggression without any contribution from alcohol."[57] This would be consistent with the observation that homicides commonly occur in leisure time and are often associated with recreational activities. Saturday nights, the traditional occasion for drinking sprees, is also the most common night for murder.

The fact, also, that murder is primarily a lower class phenonmenon suggests that alcohol intoxication alone rarely plays a decisive role in commission of the act. While it is true that alcoholics are overrepresented in the lower classes, this class association is not nearly as strong as in the case of murderers, and if pathological response to alcohol occurred

often it presumably would lead to homicide more often in middle and upper class strata.

Perhaps the most interesting theoretical possibility to emerge from the above review concerns the rarity with which alcoholism is diagnosed among murderers, despite the frequent association of alcohol consumption and homicide. In state hospital populations, where one-third or more of patients typically have a diagnosis of alcoholism,[26] apparently alcoholism is a relatively uncommon diagnosis among "criminally insane" inpatients incarcerated after a murder conviction. Most of these patients, indeed, deny drinking at time of the act.

Suicide, on the other hand, is one of the most common causes of death among alcoholics, whereas there is no evidence, to this reviewer's knowledge, that alcoholics commit homicide more often than members of the general population. In fact, the evidence suggests they may commit homicide less often than nonalcoholic lower class men who on occasion, such as Saturday nights, drink to excess. More study obviously is required before the conclusion could be drawn that alcoholism deters homicidal acts while increasing vulnerability to suicide.

Summary

After depression, alcoholism is the second most common psychiatric diagnosis among suicide victims. Suicide attempters also are frequently alcoholic. The association between alcoholism and suicide, however, may only apply to white males during the middle years of life. The relatively low rates of suicide among older black alcoholics may be a consequence of the earlier onset of excessive drinking in this group, although this needs direct confirmation before proven true. The role of alcohol, in contrast

with alcoholism, is less clear in suicide, although perhaps a quarter of suicide victims had been drinking at time of death.

Homicide, on the other hand, is associated with alcohol more than with alcoholism. In most studies, about 50% of both homicide offenders and victims had been drinking at time of the crime. Two autopsy studies indicate that victims, at least, were often severely intoxicated. However, alcoholism is rarely diagnosed in homicide offenders, suggesting that, while alcohol consumption may contribute to homicide, alcoholism does not.

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Table 1.--Frequency
of Alcoholism Among Suicides

Investigators	Year	Percentage
Casper[2]	1825	28
Heller[3]	1900	47
Schackwitz[4]	1927	29
Schmid[5]	1933	10
Dahlgren[6]	1945	30*
Sainsburg[7]	1955	6
Tuckman & Lavell[8]	1959	10
Robins, et al.[9]	1959	28
Yessler, et al.[10]	1961	10
Palola, et al.[11]	1962	31*
Pitts & Winokur[12]	1964	10

*Composite figure from several studies.